I Claim:

1. A cementitious composition comprising:

a first amount of a pozzolonic material;

a second amount of a compound comprising an alkaline earth metal; and

a catalyst selected from the group consisting of an alkali-containing zeolite, an alkali-containing feldspathoid, and combinations thereof, the catalyst being adapted to catalyze the pozzolonic reaction between the alkaline earth metal and the pozzolonic material;

said first amount and said second amount being effective, upon addition of sufficient water and curing, to produce an effective cement product.

2. The cementitious composition of claim 1 wherein the pozzolonic material is selected from the group consisting of fly ash, silica fume, diatomaceous earth, calcined or uncalcined diatomite, calcined fullers earth, pozzolonic clays, calcined or uncalcined volcanic ash, bagasse ash, rice hull ash, natural and synthetic zeolites, metakaolin, and slag.

3. The cementitious composition of claim 1 wherein said first amount is from about 10% to about 95% by weight of said cementitious composition.

4. The cementitious composition of claim 1 wherein said first amount is from about 40% to about 95% by weight pozzolonic material.

5. The cementitious composition of claim 1 wherein said first amount is about 80% by weight pozzolonic material.

6. The cementitious composition of claim 2 wherein said first amount is from about 10% to about 95% by weight pozzolonic material.

7. The cementitious composition of claim 2 wherein said first amount is from about 40% to about 95% by weight pozzolonic material.

8. The cementitious composition of claim 2 wherein said first amount is about 80% by weight pozzolonic material.

9. The cementitious composition of claim 5 wherein said first amount is from about 10% to about 50% by weight amorphous silica.

10. The cementitious composition of claim 5 wherein said first amount is from about 20% to about 40% by weight amorphous silica.

11. The cementitious composition of claim 5 wherein said pozzolonic material comprises about 35% by weight amorphous silica.

12. The cementitious composition of claim 8 wherein said pozzolonic material comprises from about 10% to about 50% by weight amorphous silica.

13. The cementitious composition of claim 8 wherein said pozzolonic material comprises from about 20% to about 40% by weight amorphous silica.

14. The cementitious composition of claim 8 wherein said pozzolonic material comprises about 35% by weight amorphous silica.

15. The cementitious composition of claim 2 further comprising Type F fly ash.

16. The cementitious composition of claim 15 wherein said catalyst comprises from about 0.1% to about 10% by weight zeolite.

17. The cementitious composition of claim 15 wherein said catalyst comprises from about 2% to about 4% by weight zeolite.

18. The cementitious composition of claim 2 further comprising Type C fly ash.

19. The cementitious composition of claim 18 wherein said catalyst comprises from about 0.1% to about 10% by weight zeolite.

20. The cementitious composition of claim 18 wherein said catalyst comprises from about 0.5% to about 1.5% by weight zeolite.

21. The cementitious composition of claim 1 wherein said zeolite comprises particles having an average diameter of from about 0.1 microns to about 10 microns.

22. The cementitious composition of claim 1 wherein said zeolite comprises particles having an average diameter of from about 2 microns to about 7 microns.

23. The cementitious composition of claim 1 wherein said zeolite comprises particles having an average diameter of about 5 microns.

24. The cementitious composition of claim 1 wherein said zeolite comprises pores having an average diameter of from about 2 Å to about 8 Å.

25. The cementitious composition of claim 1 wherein said zeolite comprises pores having an average diameter of from about 3 Å to about 5 Å.

26. The cementitious composition of claim 1 wherein said zeolite comprises pores having an average diameter of about 4.2 Å.

27. The cementitious composition of claim 1 wherein the alkaline earth metal is selected from the group consisting of calcium and magnesium.

28. The cementitious composition of claim 2 wherein the alkaline earth metal is selected from the group consisting of calcium and magnesium.

29. The cementitious composition of claim 1 wherein the alkaline earth metal comprises a calcium-containing material selected from the group consisting of CaO and $Ca(OH)_2$, said calcium-containing material being effective to react with the pozzolonic material.

30. The cementitious composition of claim 2 wherein the alkaline earth metal comprises a calcium-containing material selected from the group consisting of CaO and $Ca(OH)_2$, said calcium-containing material being effective to react with the pozzolonic material.

31. The cementitious composition of claim 27 wherein the alkaline earth metal comprises a calcium-containing material selected from the group consisting of CaO and $Ca(OH)_2$, said calcium-containing material being effective to react with the pozzolonic material.

32. The cementitious composition of claim 28 wherein the alkaline earth metal comprises a calcium-containing material selected from the group consisting of CaO and $Ca(OH)_2$, said calcium-containing material being effective to react with the pozzolonic material.

33. The cementitious composition of claim 31 wherein the calcium-containing material is selected from the group consisting of ordinary Portland cement, calcium aluminate cement, calcium sulfoaluminate cement, hydrated lime, quicklime, lime kiln dust, and combinations thereof.

34. The cementitious composition of claim 32 wherein the calcium-containing material is selected from the group consisting of ordinary Portland cement, calcium aluminate cement, calcium sulfoaluminate cement, hydrated lime, quicklime, lime kiln dust, and combinations thereof.

35. The cementitious composition of claim 33 wherein said alkaline earth metal comprises from about 5% to about 90% by weight OPC.

36. The cementitious composition of claim 33 wherein said alkaline earth metal comprises from about 5% to about 20% by weight OPC.

37. The cementitious composition of claim 33 wherein said alkaline earth metal comprises about 10% by weight OPC.

38. The cementitious composition of claim 34 wherein said alkaline earth metal comprises from about 5% to about 90% by weight OPC.

39. The cementitious composition of claim 34 wherein said alkaline earth metal comprises from about 5% to about 20% by weight OPC.

40. The cementitious composition of claim 34 wherein said alkaline earth metal comprises about 10% by weight OPC.

41. The cementitious composition of claim 1 wherein the catalyst is a naturally-occurring zeolite selected from the group consisting of analcime, chabazite, gmelinite, mordenite, natrolite, faujasite, phillipsite, sodalite, nepheline, scapolite, cancrinite, erionite, clinoptilolite, and combinations thereof.

42. The cementitious composition of claim 2 wherein the catalyst is a naturally-occurring zeolite selected from the group consisting of analcime, chabazite, gmelinite, mordenite, natrolite, faujasite, phillipsite, sodalite, nepheline, scapolite, cancrinite, erionite, clinoptilolite, and combinations thereof.

43. The cementitious composition of claim 31 wherein the catalyst is a naturally-occurring zeolite selected from the group consisting of analcime, chabazite, gmelinite, mordenite, natrolite, faujasite, phillipsite, sodalite, nepheline, scapolite, cancrinite, erionite, clinoptilolite, and combinations thereof.

44. The cementitious composition of claim 32 wherein the catalyst is a naturally-occurring zeolite selected from the group consisting of analcime, chabazite, gmelinite, mordenite, natrolite, faujasite, phillipsite, sodalite, nepheline, scapolite, cancrinite, erionite, clinoptilolite, and combinations thereof.

45. The cementitious composition of claim 42 wherein the catalyst is a naturally-occurring zeolite selected from the group consisting of analcime, chabazite, gmelinite, mordenite, natrolite, faujasite, phillipsite, sodalite, nepheline, scapolite, cancrinite, erionite, clinoptilolite, and combinations thereof.

46. The cementitious composition of claim 44 wherein the catalyst is one or more synthetic zeolite selected from the group consisting of a Type A, Type X, synthetic clinoptilolite, Type B, Type F, Type K-F, Type G, Type P-B, Type P-C, Type Z, Type ZK-19, Type ZSM-2, Type ZSM-3, and combinations thereof.

47. The cementitious composition of claim 45 wherein the catalyst is one or more synthetic zeolite selected from the group consisting of a Type A, Type X, synthetic clinoptilolite, Type B, Type F, Type K-F, Type G, Type P-B, Type P-C, Type Z, Type ZK-19, Type ZSM-2, Type ZSM-3, and combinations thereof.

48. The cementitious composition of claim 1 further comprising an expanded filler selected from the group consisting essentially of hollow glass cenospheres, glass or polymer microspheres, vermiculite, expanded pearlite, expanded polystyrene, expanded shale or clay, synthetic lightweight aggregate, and combinations thereof.

49. The cementitious composition of claim 2 further comprising an expanded filler selected from the group consisting essentially of hollow glass cenospheres, glass or polymer microspheres, vermiculite, expanded pearlite, expanded polystyrene, expanded shale or clay, synthetic lightweight aggregate, and combinations thereof.

50. The cementitious composition of claim 31 further comprising an expanded filler selected from the group consisting essentially of hollow glass cenospheres, glass or polymer microspheres, vermiculite, expanded pearlite, expanded polystyrene, expanded shale or clay, synthetic lightweight aggregate, and combinations thereof.

51. The cementitious composition of claim 32 further comprising an expanded filler selected from the group consisting essentially of hollow glass cenospheres, glass or polymer microspheres, vermiculite, expanded pearlite, expanded polystyrene, expanded shale or clay, synthetic lightweight aggregate, and combinations thereof.

52. The cementitious composition of claim 45 further comprising an expanded filler selected from the group consisting essentially of hollow glass cenospheres, glass or polymer microspheres, vermiculite, expanded pearlite, expanded polystyrene, expanded shale or clay, synthetic lightweight aggregate, and combinations thereof.

53. The cementitious composition of claim 1 further comprising a third amount of a water-reducing component effective to decrease by about 10% or more the amount of water that must be added to said cementitious composition to achieve a workable consistency.

54. The cementitious composition of claim 2 further comprising a third amount of a water-reducing component effective to decrease by about 10% or more the amount of water that must be added to said cementitious composition to achieve a workable consistency.

55. The cementitious composition of claim 50 further comprising a third amount of a water-reducing component effective to decrease by about 10% or more the amount of water that must be added to said cementitious composition to achieve a workable consistency.

56. The cementitious composition of claim 51 further comprising a third amount of a water-reducing component effective to decrease by about 10% or more the amount of water that must be added to said cementitious composition to achieve a workable consistency.

57. The cementitious composition of claim 52 further comprising a third amount of a water-reducing component effective to decrease by about 10% or more the amount of water that must be added to said cementitious composition to achieve a workable consistency.

58. The cementitious composition of claim 53 wherein the water-reducing component is selected from the group consisting of calcium or alkali salts of sulfonated lignin, hydroxylated polymers and copolymers, salts of hydroxy carboxylic acids, salts of condensation polymers of melamine urea and melamine formaldehyde, salts of condensation polymers of sulfonated naphthalene formaldehyde, formaldehyde/urea polymers,

carboxylated polyethers, sulfonated condensation copolymers of formaldehyde and ketones, and combinations thereof.

59. The cementitious composition of claim 58 wherein said water-reducing component is selected from the group consisting of sodium citrate and sodium gluconate.

60. The cementitious composition of claim 54 wherein the water-reducing component is selected from the group consisting of calcium or alkali salts of sulfonated lignin, hydroxylated polymers and copolymers, salts of hydroxy carboxylic acids, salts of condensation polymers of melamine urea and melamine formaldehyde, salts of condensation polymers of sulfonated naphthalene formaldehyde, formaldehyde/urea polymers, carboxylated polyethers, sulfonated condensation copolymers of formaldehyde and ketones, and combinations thereof.

61. The cementitious composition of claim 55 wherein the water-reducing component is selected from the group consisting of calcium or alkali salts of sulfonated lignin, hydroxylated polymers and copolymers, salts of hydroxy carboxylic acids, salts of condensation polymers of melamine urea and melamine formaldehyde, salts of condensation polymers of sulfonated naphthalene formaldehyde, formaldehyde/urea polymers, carboxylated polyethers, sulfonated condensation copolymers of formaldehyde and ketones, and combinations thereof.

62. The cementitious composition of claim 56 wherein the water-reducing component is selected from the group consisting of calcium or alkali salts of sulfonated lignin, hydroxylated polymers and copolymers, salts of hydroxy carboxylic acids, salts of condensation polymers of melamine urea and melamine formaldehyde, salts of condensation polymers of sulfonated naphthalene formaldehyde, formaldehyde/urea polymers,

carboxylated polyethers, sulfonated condensation copolymers of formaldehyde and ketones, and combinations thereof.

63. The cementitious composition of claim 57 wherein the water-reducing component is selected from the group consisting of calcium or alkali salts of sulfonated lignin, hydroxylated polymers and copolymers, salts of hydroxy carboxylic acids, salts of condensation polymers of melamine urea and melamine formaldehyde, salts of condensation polymers of sulfonated naphthalene formaldehyde, formaldehyde/urea polymers, carboxylated polyethers, sulfonated condensation copolymers of formaldehyde and ketones, and combinations thereof.

64. The cementitious composition of claim 53 further comprising a fourth amount of a viscosity modifier effective to reduce segregation.

65. The cementitious composition of claim 54 further comprising a fourth amount of a viscosity modifier effective to reduce segregation.

66. The cementitious composition of claim 55 further comprising a fourth amount of a viscosity modifier effective to reduce segregation.

67. The cementitious composition of claim 56 further comprising a fourth amount of a viscosity modifier effective to reduce segregation.

68. The cementitious composition of claim 57 further comprising a fourth amount of a viscosity modifier effective to reduce segregation.

69. The cementitious composition of claim 58 further comprising a fourth amount of a viscosity modifier effective to reduce segregation.

70. The cementitious composition of claim 60 further comprising a fourth amount of a viscosity modifier effective to reduce segregation.

71. The cementitious composition of claim 64 wherein the viscosity modifier is selected from the group consisting of hydroxyethyl cellulose, guar gum, carageenan gum, various clays, salts of acrylic acid and acrylic acid copolymers, acrylamide polymers and copolymers of acrylamide.

72. The cementitious composition of claim 65 wherein the viscosity modifier is selected from the group consisting of hydroxyethyl cellulose, guar gum, carageenan gum, various clays, salts of acrylic acid and acrylic acid copolymers, acrylamide polymers and copolymers of acrylamide.

73. The cementitious composition of claim 66 wherein the viscosity modifier is selected from the group consisting of hydroxyethyl cellulose, guar gum, carageenan gum, various clays, salts of acrylic acid and acrylic acid copolymers, acrylamide polymers and copolymers of acrylamide.

74. The cementitious composition of claim 67 wherein the viscosity modifier is selected from the group consisting of hydroxyethyl cellulose, guar gum, carageenan gum, various clays, salts of acrylic acid and acrylic acid copolymers, acrylamide polymers and copolymers of acrylamide.

75. The cementitious composition of claim 68 wherein the viscosity modifier is selected from the group consisting of hydroxyethyl cellulose, guar gum, carageenan gum, various clays, salts of acrylic acid and acrylic acid copolymers, acrylamide polymers and copolymers of acrylamide.

76. The cementitious composition of claim 69 wherein the viscosity modifier is selected from the group consisting of hydroxyethyl cellulose, guar gum, carageenan gum, various clays, salts of acrylic acid and acrylic acid copolymers, acrylamide polymers and copolymers of acrylamide.

77. The cementitious composition of claim 70 wherein the viscosity modifier is selected from the group consisting of hydroxyethyl cellulose, guar gum, carageenan gum, various clays, salts of acrylic acid and acrylic acid copolymers, acrylamide polymers and copolymers of acrylamide.

78. A cementitious composition comprising:

from about 10% to about 95% by weight of a pozzolonic material comprising about 30% by weight or more amorphous silica,

from about 1% to about 85% by weight of a calcium-containing material, and

from about 0.1 to about 45% by weight of an alkali-containing zeolite.

79. The cementitious composition of claim 78 further comprising a water-reducing component effective to decrease by about 10% or more the amount of water that must be added to said cementitious composition to achieve a workable consistency.

80. The cementitious composition of claim 79 wherein the water-reducing component is selected from the group consisting of calcium or alkali salts of sulfonated lignin, hydroxylated polymers and copolymers, salts of hydroxy carboxylic acids, salts of condensation polymers of melamine urea and melamine formaldehyde, salts of condensation polymers of sulfonated naphthalene formaldehyde, formaldehyde/urea polymers, carboxylated polyethers, sulfonated condensation copolymers of formaldehyde and ketones, and combinations thereof.

81. The cementitious composition of claim 78 further comprising a viscosity modifier effective to reduce segregation.

82. The cementitious composition of claim 79 further comprising a viscosity modifier effective to reduce segregation.

83. The cementitious composition of claim 80 further comprising a viscosity modifier effective to reduce segregation.

84. The cementitious composition of claim 81 wherein the viscosity modifier is selected from the group consisting of hydroxyethyl cellulose, guar gum, carageenan gum, various clays, salts of acrylic acid and acrylic acid copolymers, acrylamide polymers and copolymers of acrylamide.

85. The cementitious composition of claim 82 wherein the viscosity modifier is selected from the group consisting of hydroxyethyl cellulose, guar gum, carageenan gum, various clays, salts of acrylic acid and acrylic acid copolymers, acrylamide polymers and copolymers of acrylamide.

86. The cementitious composition of claim 83 wherein the viscosity modifier is selected from the group consisting of hydroxyethyl cellulose, guar gum, carageenan gum, various clays, salts of acrylic acid and acrylic acid copolymers, acrylamide polymers and copolymers of acrylamide.

87. The cementitious composition of claim 1 wherein the strength of said cement product at 28 days is greater than the strength of the same cement product in the absence of said catalysts selected from the group consisting of zeolite, feldspathoid, and a combination thereof.

88. The cementitious composition of claim 2 wherein the strength of said cement product at 28 days is greater than the strength of the same cement product in the absence of said catalysts selected from the group consisting of zeolite, feldspathoid, and a combination thereof.

89. The cementitious composition of claim 40 wherein the strength of said cement product at 28 days is greater than the strength of the same cement product in the absence of

said catalysts selected from the group consisting of zeolite, feldspathoid, and a combination thereof.

90. A cementitious composition comprising:

from about 10% to about 95% by weight of a pozzolonic material comprising about 30% by weight or more amorphous silica,

from about 1% to about 85% by weight of a calcium-containing material, and

from about 0.1 to about 45% by weight of an alkali-containing feldspathoid.

91. The cementitious composition of claim 90 further comprising a water-reducing component effective to decrease by about 10% or more the amount of water that must be added to said cementitious composition to achieve a workable consistency.

92. The cementitious composition of claim 91 wherein the water-reducing component is selected from the group consisting of calcium or alkali salts of sulfonated lignin, hydroxylated polymers and copolymers, salts of hydroxy carboxylic acids, salts of condensation polymers of melamine urea and melamine formaldehyde, salts of condensation polymers of sulfonated naphthalene formaldehyde, formaldehyde/urea polymers, carboxylated polyethers, sulfonated condensation copolymers of formaldehyde and ketones, and combinations thereof.

93. The cementitious composition of claim 90 further comprising a viscosity modifier effective to reduce segregation.

94. The cementitious composition of claim 91 further comprising a viscosity modifier effective to reduce segregation.

95. The cementitious composition of claim 92 further comprising a viscosity modifier effective to reduce segregation.

96. The cementitious composition of claim 93 wherein the viscosity modifier is selected from the group consisting of hydroxyethyl cellulose, guar gum, carageenan gum, various clays, salts of acrylic acid and acrylic acid copolymers, acrylamide polymers and copolymers of acrylamide.

97. The cementitious composition of claim 94 wherein the viscosity modifier is selected from the group consisting of hydroxyethyl cellulose, guar gum, carageenan gum, various clays, salts of acrylic acid and acrylic acid copolymers, acrylamide polymers and copolymers of acrylamide.

98. The cementitious composition of claim 95 wherein the viscosity modifier is selected from the group consisting of hydroxyethyl cellulose, guar gum, carageenan gum, various clays, salts of acrylic acid and acrylic acid copolymers, acrylamide polymers and copolymers of acrylamide.

99. A cementitious product comprising cementitious components and a catalyst selected from the group consisting of zeolite, feldspathoid, and a combination thereof.

100. The cementitious product of claim 99 further comprising a water-reducing component effective to decrease by about 10% or more the amount of water that must be added to said cementitious composition to achieve a workable consistency.

101. The cementitious product of claim 100 wherein the water-reducing component is selected from the group consisting of calcium or alkali salts of sulfonated lignin, hydroxylated polymers and copolymers, salts of hydroxy carboxylic acids, salts of condensation polymers of melamine urea and melamine formaldehyde, salts of condensation polymers of sulfonated naphthalene formaldehyde, formaldehyde/urea polymers, carboxylated polyethers, sulfonated condensation copolymers of formaldehyde and ketones, and combinations thereof.

102. The cementitious product of claim 99 further comprising a viscosity modifier effective to reduce segregation.

103. The cementitious product of claim 100 further comprising a viscosity modifier effective to reduce segregation.

104. The cementitious product of claim 101 further comprising a viscosity modifier effective to reduce segregation.

105. The cementitious product of claim 102 wherein the viscosity modifier is selected from the group consisting of hydroxyethyl cellulose, guar gum, carageenan gum, various clays, salts of acrylic acid and acrylic acid copolymers, acrylamide polymers and copolymers of acrylamide.

106. The cementitious product of claim 103 wherein the viscosity modifier is selected from the group consisting of hydroxyethyl cellulose, guar gum, carageenan gum, various clays, salts of acrylic acid and acrylic acid copolymers, acrylamide polymers and copolymers of acrylamide.

107. The cementitious product of claim 104 wherein the viscosity modifier is selected from the group consisting of hydroxyethyl cellulose, guar gum, carageenan gum, various clays, salts of acrylic acid and acrylic acid copolymers, acrylamide polymers and copolymers of acrylamide.

108. A method of making a cementitious composition comprising mixing a first quantity of pozzolonic material, a second quantity of alkaline earth metal, and an amount of catalyst selected from the group consisting of an alkali-containing zeolite, an alkali-containing feldspathoid, and combinations thereof, to produce the cementitious composition, the amount being effective to catalyze the pozzolonic reaction between a majority of the pozzolonic material and the alkaline earth metal.

109. The method of claim 108 wherein the pH of said pozzolonic reaction is from about 10 to about 14.

110. The method of claim 108 wherein the pH of said pozzolonic reaction is from about 11 to about 14.

111. The method of claim 108 wherein the pH of said pozzolonic reaction is about 12.

112. The method of claim 108 comprising adding an amount of water to the cementitious composition effective to achieve a workable consistency.

113. The method of claim 109 further comprising curing the cementitious composition to produce a cement product.

114. The method of claim 110 wherein the strength of the cement product at 28 days is greater than the strength of the same cement product in the absence of said catalysts selected from the group consisting of zeolite, feldspathoid, and a combination thereof.

115. A method of catalyzing a pozzolonic reaction comprising mixing a first quantity of pozzolonic material and a second quantity of alkaline earth metal with an amount of catalyst selected from the group consisting of an alkali-containing zeolite, an alkali-containing feldspathoid, and combinations thereof, the amount being effective to catalyze the pozzolonic reaction between a majority of the pozzolonic material and the alkaline earth metal.

116. The method of claim 115 wherein the amount of the catalyst is effective to catalyze the pozzolonic reaction between substantially all of the pozzolonic material and the alkaline earth metal.

117. The method of claim 115 further comprising adding an amount of a water-reducing component to the cementitious composition in an amount effective to decrease by

about 10% or more the amount of water that must be added to said cementitious composition to achieve a workable consistency.

118. The method of claim 116 further comprising adding an amount of a water-reducing component to the cementitious composition in an amount effective to decrease by about 10% or more the amount of water that must be added to said cementitious composition to achieve a workable consistency.

119. The method of claim 115 further comprising adding an amount of a viscosity modifier to the cementitious composition effective to reduce segregation.

120. The method of claim 116 further comprising adding an amount of a viscosity modifier to the cementitious composition effective to reduce segregation.

121. The method of claim 117 further comprising adding an amount of a viscosity modifier to the cementitious composition effective to reduce segregation.

122. The method of claim 118 further comprising adding an amount of a viscosity modifier to the cementitious composition effective to reduce segregation.